

Abstract Submitted
for the DAMOP08 Meeting of
The American Physical Society

Photoionization of Sc^{+2} AYAO SOSSAH, HSIAO-LING ZHOU, STEVEN MANSON, Georgia State University — Photoionization cross section calculations are performed on the ground ($[Ne]3s^23p^63d^2D_{3/2}^e$) and the first two excited ($[Ne]3s^23p^63d^2D_{5/2}^e$ and $[Ne]3s^23p^64s^2S_{1/2}^e$) states of Sc^{+2} for photon energies from threshold to 68.0 eV. The discrete Sc^{+3} orbitals are generated using the computer program AUTOSTRUCTURE; 24 configurations are included in the configuration-interaction (CI) calculation for Sc^{+3} . In addition to the non-relativistic (LS-coupling) R-matrix method, we have used the relativistic (Breit-Pauli) R-matrix method to carry out the calculations to focus on relativistic effects. The results are compared with previous theoretical results and existing experimental data, and rather good agreement with experimental data is obtained. The most prominent ($3p \rightarrow 3d$) giant resonances are analyzed and identified, and our calculated positions and widths are compared with experimental results. This work is supported by US DOE and NASA.

Ayao Sossah
Georgia State University

Date submitted: 13 Mar 2008

Electronic form version 1.4